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EXAMINER	
CLAWSON, STEPHEN J	

ART UNIT	PAPER NUMBER
4172	

NOTIFICATION DATE	DELIVERY MODE
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Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Notice of the Office communication was sent electronically on above-indicated "Notification Date" to the following e-mail address(es):

ADIPFDD@bipc.com

Office Action Summary	Application No.	Applicant(s)	
	10/566,505	HOFMANN ET AL.	
	Examiner	Art Unit	
	STEPHEN CLAWSON	4172	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE *3* MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *10/3/2006*.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *21-39* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *21-39* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☒ The drawing(s) filed on *01/31/2006* is/are: a)☒ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☒ All b)☐ Some * c)☐ None of:

1.☒ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☒ Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date *02/19/2008*.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____.
5) ☐ Notice of Informal Patent Application
6) ☐ Other: _____.

DETAILED ACTION

Claim Rejections - 35 USC § 102

1. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

> A person shall be entitled to a patent unless –
>
> (b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

2. Claims 21, 22 and 24 are rejected under 35 U.S.C. 102(b) as being anticipated by Xylomenos (George Xylomenos. "Link Layer Support for Quality of Service on Wireless Internet Links" IEEE Personal Communications, October 1999.)

Regarding claim 21, Xylomenos teaches an application unit comprising:

a) -at least one protocol stack for wireless communication using a mobile communication network;**(Xylomenos pg. 57, "Internal Design", fig. 10; pg. 58, "External Interface", fig. 11; Xylomenos teaches a multiservice link layer architecture which improves Internet performance over wireless links. Figure 10 shows a protocol stack for wireless communication and figure 11 shows a protocol stack adapted for wireless communication.)**

-at least one physical interface; **(Xylomenos pg.57, "Internal Design", fig.10; Xylomenos shows a physical layer as part of the wireless communications protocol stack.)**

-at least one application adapted for exchanging data traffic with said at least one protocol stack within the application unit, said data traffic and protocol stack being adapted for wireless communication using said mobile communication network;

(Xylomenos pg. 58, "External Interface", fig. 11; Xylomenos discloses a wireless communication protocol stack with an adaptive application unit where data traffic is exchanged.)

b) wherein said at least one protocol stack is adapted for processing said data traffic from said at least one application and transferring the processed data traffic to said at least one physical interface; **(Xylomenos pg. 58, "External Interface", fig. 11; Xylomenos shows the OSI model protocol stack that transfers data traffic from the application to the physical interface.)**

and wherein

c) said at least one protocol stack is adapted for receiving via said at least one physical interface at least one internet protocol, IP, packet containing flow control information; **(Xylomenos pg. 58, "External Interface"; Xylomenos discloses a physical layer that provides feedback to the link layer, which combines its own QoS metrics (i.e. residual loss, delay, and throughput).)**

d) said at least one IP packet is sent via said at least one physical interface from a modem unit responsible for setting up a wireless connection with said mobile communication network; **(Xylomenos pg. 58, "External Interface", fig. 11, Xylomenos shows the flow of data up the OSI model through the different parts. The network layer shows the Mobile IP packet being sent up (and down) through the layers. When it reaches the physical layer which includes the physical hardware for sending the data over the mobile communications network, it is sent**

across the network. The data link layer pictured in fig. 11 is responsible for setting up the wireless connection.)

e) said flow control information is collected by the modem unit and contains information about the actual status of the wireless connection set up by the modem unit; **(Xylomenos pg. 58, "External Interface", fig. 11, Xylomenos discloses the feedback propagation through the protocol stack. Each part of the stack contributes flow control (QoS) measurements about the status of the wireless connection that has been established.)**

f) further flow control information is derived from said information about the actual status of the wireless connection and comprises predicted information about a future status of the wireless connection; and **(Xylomenos pg. 58, "External Interface"; Xylomenos teaches that besides making dynamic service selection possible, these metrics allow higher layers to estimate end-to-end path performance before and during a session. These metrics may be used directly or modified by intermediate layers to account for their own error recovery mechanisms.)**

g) the prediction is performed in the modem unit or in the application unit and the prediction is sent to the respective other unit via said at least one physical interface. **(Xylomenos pg. 58, "External Interface"; pg. 59, "Integration with the Internet"; Xylomenos teaches events detected by the link-layer which is located within the modem unit are propagated throughout the protocol stack and would include the application layer. These events are sent via the physical interface. QoS**

information would be included in this prediction and would be used to negotiate RSVP requests for end-to-end delay sensitive data streams.)

Regarding claim 22, Xylomenos discloses the application unit according to claim 21, wherein said application unit is adapted for transmitting to said unit at least one of:

-QoS profiles of said applications, or **(Xylomenos pg. 59, "Integration with the Internet"; Xylomenos teaches the use of end-to-end services using RSVP for setup and negotiations of parameters for higher-layers including the application layer.)**

- a request sent to the modem unit to trigger the modem unit to send IP packets containing said flow control information to the application unit. **(Xylomenos pg. 58, "External Interface", fig. 11; pg. 59, "Integration with the Internet"; Xylomenos discloses in fig. 11 feedback propagation through the protocol stack. It shows the propagation from physical to the application level. The use of the RSVP protocol for ensuring available bandwidth for time sensitive data is one example of this propagation.)**

Regarding claim 24, Xylomenos teaches the application unit according to claim 21, wherein, the application unit collector builds at least one IP packet which is used to request flow control information from the modem. **(Xylomenos pg. 58, "External Interface"; pg. 59, "Integration with the Internet"; Xylomenos teaches on pg. 58 the goal of the link layer scheduler is not end-to-end QoS provision but the**

preservation of higher-layer scheduling. Examiner interprets this scheduling which includes RSVP requests as encompassing the requested flow control information from lower layers including the modem.)

3. Claims 29-39 are rejected under 35 U.S.C. 102(b) as being anticipated by Immonen (EP 1168730A2).

Regarding claim 29, Immonen discloses a modem unit responsible for setting up a wireless connection with a mobile communication network comprising:

a) a broadcast facility adapted for setting up a wireless connection for mobile communication; **(Immonen, fig.2, para. 35-38; Immonen teaches a host or wireless terminal connected wirelessly to an apparatus or wireless access point that would broadcast a signal to mobile devices.)**

b) at least one transmission protocol stack adapted for transferring data traffic between said broadcast facility and at least one physical interface; **(Immonen, fig. 2, para. 35-38; Immonen shows a transmission protocol stack adapted for transferring data traffic between the broadcast facility and the physical interface.)**

wherein

c) a sub-collector for collecting flow control information about the status of the wireless connection from said transmission protocol stack; **(Immonen, fig. 2, para. 35-38; Immonen discloses a wireless QoS management protocol which would provide information about the link including jitter, bit error rate, etc.)**

d) a unit for creating at least one IP packet containing the flow control information; and **(Immonen, fig. 2, para. 35-38)**

e) a sender for sending said at least one IP packet from the modem unit via said at least one physical interface to an application unit connected to the modem unit via said at least one physical interface; **(Immonen, fig. 2, para. 35-38)**

f) wherein said flow control information comprises predicted information about a future status of the wireless connection; and

g) wherein the prediction is performed in the modem unit. **(Immonen, para. 46-48 & fig. 7. Immonen discloses the use of a packet filtering table to derive flow decisions. Further, QoS interworking mechanism contains an admission control algorithm. This algorithm decides whether session setup request are accepted, while radio resource management function controls the usage of radio resources in the wireless access point. The algorithm is chosen by the operator and is utilized to maximize valuable network resources.)**

Regarding claim 30, Immonen discusses the modem unit according to claim 29, wherein a second QoS packet processor module adapted for at least one of monitoring and modifying the data traffic between said at least one physical interface and the transmission protocol stack. **(Immonen, fig. 2, para. 35-38; Immonen shows a QoS packet processor located above the radio link layer.)**

Regarding claim 31, Immonen discloses user equipment comprising at least one application unit according to claim 21 that is connected, via said at least one physical interface, with a modem unit. **(Immonen, pg. 13, fig. 3; Immonen discloses an application unit that is connected via a physical interface to the modem unit responsible for the management of the radio link.)**

Regarding claim 32, Immonen teaches the user equipment according to claim 31, wherein said modem unit and at least one of the application units are implemented as one embedded mobile device, preferably as a smartphone. **(Immonen pg. 3, para. 13;**

Immonen discloses the use of a 3G cellular network. Examiner interprets the use of a 3G cellular network as encompassing the use of embedded mobile devices including smartphone to connect to the network.)

Regarding claim 33, Immonen discloses a method for optimizing data flow in a distributed user equipment for mobile communication,

a) said user equipment comprising at least one application unit and a modem unit responsible for setting up a wireless connection with a mobile communication network, wherein the modem unit is connected to the application unit via at least one physical interface; **(Immonen pg. 13, fig. 3)**

b) with at least one application being installed on at least one of the application units; **(Immonen pg. 13, fig. 3; Immonen shows the use of different applications including VoIP and video streaming technologies.)**

c) wherein the modem unit is adapted for setting up a wireless connection for mobile communication; **(Immonen pg. 13, fig. 3; Immonen shows a radio link layer which would manage the wireless connection.)**

wherein said method comprising the steps of:

d) within the modem unit collecting flow control information about the status of the wireless connection; **(Immonen fig. 2, para. 35-38; Immonen teaches a wireless QoS management protocol that collects flow control information about the status of the connection.)**

e) within the modem unit creating at least one IP packet containing the flow control information; **(Immonen fig 2, para. 35-38)**

f) sending said IP packets form the modem unit to the application unit via said at least one physical interface; **(Immonen, pg. 13, fig. 3)**

g) controlling the data flow in the application unit for optimum quality of service based on the received flow control information; **(Immonen, pg. 13, fig. 3; Immonen teaches this limitation via the IP session manager.)**

h) wherein said flow control information comprises predicted information about a future status of the wireless connection; and

i) wherein the prediction is performed in the modem unit. **(Immonen, para. 46-48 & fig. 7. Immonen discloses the use of a packet filtering table to derive flow decisions. Further, QoS interworking mechanism contains an admission control algorithm. This algorithm decides whether session setup request are accepted, while radio resource management function controls the usage of radio resources in the wireless access point. The algorithm is chosen by the operator and is utilized to maximize valuable network resources.)**

Regarding claim 34, Immonen discloses a computer program product, comprising computer program code means, wherein the program code means can be stored or are stored on a storage medium; and wherein the program code means are adapted to perform the method of the method claim 33, if the program code means are executed on a mobile device, a processing system, or a digital signal processor.

(Immonen, para. 57; Immonen discloses computer program for applying a predetermined transmission process to the transmission of IP packets of a particular Internet Protocol (IP) flow in an IP network. This computer program is executable on a mobile device, host or other wireless access point. These disclosures encompass a mobile device, a processing system, or a digital signal processor.)

Wherein the program code means are adapted to perform the method of the method claim 33, if the program code means are executed on a mobile device, a processing system, or a digital signal processor. **(Immonen, para. 57; Immonen discloses computer program for applying a predetermined transmission process to the transmission of IP packets of a particular Internet Protocol (IP) flow in an IP network. This computer program is executable on a mobile device, host or other wireless access point. These disclosures encompass a mobile device, a processing system, or a digital signal processor.)**

Regarding claim 35, Immonen teaches a computer loadable data structure, that is adapted to perform the method according to the method of claim 33 while the data structure is being executed on a mobile device, a processing system, or a digital signal processor. **(Immonen, para. 57; Immonen discloses computer program for applying a predetermined transmission process to the transmission of IP packets of a particular Internet Protocol (IP) flow in an IP network. This computer program is executable on a mobile device, host or other wireless access point.**

These disclosures encompass a mobile device, a processing system, or a digital signal processor.)

Regarding claim 36, Immonen discusses a computer program, wherein the computer program is adapted to perform the method according to the method of claim 33 while the computer program is being executed on a mobile device, a processing system, or a digital signal processor. **(Immonen, para. 57; Immonen discloses computer program for applying a predetermined transmission process to the transmission of IP packets of a particular Internet Protocol (IP) flow in an IP network. This computer program is executable on a mobile device, host or other wireless access point. These disclosures encompass a mobile device, a processing system, or a digital signal processor.)**

Regarding claim 37, Immonen teaches a computer program comprising program means for performing the method according to the method claim 33 while the computer program is being executed on a mobile device, a processing system, or a digital signal processor. **(Immonen, para. 57; Immonen discloses computer program for applying a predetermined transmission process to the transmission of IP packets of a particular Internet Protocol (IP) flow in an IP network. This computer program is executable on a mobile device, host or other wireless access point. These disclosures encompass a mobile device, a processing system, or a digital signal processor.)**

Regarding claim 38, Immonen discloses a computer program comprising program means according to claim 34, wherein the program means are stored on a storage medium readable to a computer. **(Immonen, para. 57 and pg. 10, claim 42; Immonen discloses computer program for applying a predetermined transmission process to the transmission of IP packets of a particular Internet Protocol (IP) flow in an IP network. This computer program is executable on a mobile device, host or other wireless access point. Claim 42 of Immonen discloses QoS class information stored in an IP packet filtering table. Examiner interprets stored as meaning stored in memory and is therefore, readable to a computer.)**

Regarding claim 39, Immonen teaches a storage medium, wherein a data structure is stored on the storage medium and wherein the data structure is adapted to perform the method according to the method claim 33 after having been loaded at least partially into a main and /or working storage of a mobile device, a processing system, or a digital signal processor. **(Immonen, para. 57; Immonen discloses computer program for applying a predetermined transmission process to the transmission of IP packets of a particular Internet Protocol (IP) flow in an IP network. This computer program is executable on a mobile device, host or other wireless access point. These disclosures encompass a mobile device, a processing system, or a digital signal processor. Claim 42 of Immonen discloses QoS class**

information stored in an IP packet filtering table. Examiner interprets stored as meaning stored in memory and is therefore, readable to a computer. Further, claim 42 refers to an apparatus which includes a mobile device, a processing system, or a digital signal processor.)

Claim Rejections - 35 USC § 103

4. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

5. Claims 23 and 28 are rejected under 35 U.S.C. 103(a) as being unpatentable over Xylomenos and further in view of Immonen (EP 1168730A2).

Regarding claim 23, as already mentioned, Xylomenos teaches teaches a multiservice link layer architecture.

Xylomenos does not teach an application unit collector for extracting IP packets containing flow control information.

However, the preceding limitation is known in the art of wireless network communications. Immonen teaches the application unit according to claim 21, wherein

an application unit collector for extracting said IP packets containing flow control information out of an IP packet flow **Immonen pg. 11 & 13, figs. 1 & 3; Immonen**

discloses a QoS internetworking mechanism which provides IP management protocol and QoS session services to upper layers. Fig. 3 shows the application unit of the disclosed invention which can be adapted to VoIP, video, etc. The IP management protocol contains flow control information that would be extracted from the IP packet flow.) Therefore, it would have been obvious to one of ordinary skill in the art at the time of the invention to combine the link layer architecture described in Xylomenos with the internetworking mechanism which provides IP management protocol and QoS session service to upper layers because it improves network performance over wireless links.

Regarding claim 28, Immonen teaches the application unit according to claim 21, wherein a decider module for controlling the data flow for optimum quality of service based on the received flow control information;

Wherein the decider uses a look-up table for deriving the decisions;

Wherein the lookup table has a higher layer protocol stack state and the flow control information as input and an action to be taken for the higher layer protocol stack of the application unit as output. **(Immonen, para. 46-48 & fig. 7. Immonen discloses the use of a packet filtering table to derive flow decisions. Further, QoS interworking mechanism contains an admission control algorithm. This algorithm decides whether session setup request are accepted, while radio resource management function controls the usage of radio resources in the**

wireless access point. The algorithm is chosen by the operator and is utilized to maximize valuable network resources.)

6. Claims 25 and claim 26 are rejected under 35 U.S.C. 103(a) as being unpatentable over Xylomenos and further in view of Blake (S. Blake, "An Architecture for Differentiated Services" Network Working Group RFC 2475, December 1998).

Regarding claim 25, as already mentioned, Xylomenos teaches a multiservice link layer architecture.

Xylomenos does not teach the use of an authentication protocol as username a desired IP address.

However, the preceding limitation is known in the art of wireless network communications. Blake teaches the application unit according to claim 21, wherein when requesting flow control information from the modem, the application unit collector uses in an authentication protocol as username a desired IP address. **(Blake pg. 13 & 27; Blake teaches a packet classifier that selects packets within a traffic stream. This classifier authenticates the information. Section 6 of Blake discloses the primary goal of differentiated services is to allow different levels of service to be provided for traffic streams on a common network infrastructure. Traffic authentication is required to validate some DS codepoints that correspond to enhanced services and may be authenticated through IPsec or by knowing the inbound link is connected to exactly one customer site.)** Therefore, it would have been obvious to one of ordinary skill in the art at the time of the invention to combine the

link layer architecture described in Xylomenos with the authentication protocol taught in Blake because it improves network performance and security over wireless links.

Regarding claim 26, Blake teaches the application unit according to claim 21, wherein a first QoS packet processor module in the protocol stack of the application unit adapted for at least one of monitoring and modifying the data traffic. **(Blake pg. 13-15; Blake discloses the use of traffic classification and conditioning in differentiated services. Packet classifiers monitor data traffic based on the content of some portion of the packet header. Traffic conditioners modify traffic packets and may contain a meter, marker, shaper, and dropper. Both classifiers and conditioners are used to bring data streams in compliance with QoS specifications set forth.)**

7. Claim 27 is rejected under 35 U.S.C. 103(a) as being unpatentable over Xylomenos and further in view of Panian (Jim Panian, "The IP Modem Interface Standard" Portable Computer and Communications Association, Modem Standards Committee, May 6, 1998).

Regarding claim 27, as already mentioned, Xylomenos teaches a multiservice link layer architecture.

Xylomenos does not teach the detecting of the connection of the modem, whether the modem is usable at the moment, or which parameters are supported by the modem.

However, the preceding limitation is known in the art of network communications. Panian teaches an application unit according to claim 21, wherein a media sense unit responsible for detecting

a) which modem is connected to the application unit, and/or

b) whether this modem is usable at the moment; and/or

c) which parameters are supported by the modem. **(Panian, pg. 19; Panian teaches the AT +WIPM commands to interrogate the IP modem interface. These commands interrogates the characteristics and capabilities of the IP modem interface and allows a data terminal (DTE) (e.g. mobile device) to determine if the service wireless modem (DCE) is capable of supporting the requests. Among other information, this information includes whether the service offered is TDMA, GSM, CDMA, AMPS, CDPD, GUTS, SMS, or digital packet data.)** Therefore, it would have been obvious to one of ordinary skill in the art at the time of the invention to combine the link layer architecture described in Xylomenos with the detecting the state of the modem because it permits network links and improves network performance over wireless links.

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to STEPHEN CLAWSON whose telephone number is (571)270-7498. The examiner can normally be reached on M-F 7:30-5:00 pm est.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Lewis West can be reached on 571-272-7859. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/STEPHEN CLAWSON/
Examiner, Art Unit 4172

/Lewis G. West/
Supervisory Patent Examiner, Art Unit 4172